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LICHEN NOTES No. 5.*

REMARKS ON NOMENCLATURE AND THREE NEW NAMES.

G. K. MERRILL.

The very full explication given to the genus Ramalina in Nylander's Recognitio Monographica Ramalinarum, provided for lichenists a treatise whose value is scarcely impaired by the lapse of years. Naturally the names of some of the species have met with revision, investigation has resulted in some elisions, and a few of the forms remain unrecognized except by the great lichenist himself; but the comprehensiveness of the work is conceded, it is exceedingly usable, and its disposition of species has in the main been followed by later writers. The late Prof. E. Tuckerman is a notable exception however, giving us in his Synopsis Pt. I, 1882, an entirely different view of the genus with respect to some of the specific affinities and names. Differing from Nylander in that author's disposition of the *Ramalina calicaris*, *Ramalina rigida* and *Ramalina pusilla* groups, in *R. calicaris* he follows the thought of the elder Fries. *R. rigida* is made to stand for several of Nylander's names, and in *R. pusilla* he totally differs from the accomplished monographist. It is not easy to determine why Tuckerman adopted the view of Fries with respect to the *R. calicaris* group, for its forms are so protean that it is only by attentively studying the minuter differences that a clear understanding is arrived at. Nor is it comprehensible that clarity is aided by the reduction of the many and strikingly dissimilar forms allied to *R. rigida* to one species. There can be no question but what the labor of determining species is minimized by conservatism of Tuckerman's sort, but who is satisfied with a moderate understanding of a subject under investigation, if a broader or more detailed comprehension is obtainable. Nylander has been accused of triviality of diagnosis in his separation of Ramalina forms, and it is to be conceded that he made use of every last character that analysis could seize upon. But if trivial facts of diagnosis are found to be typical and constant, no better confirmation of opinion is needed, and no reason exists for disavowing a thing merely because it is trivial.

The names made use of in the following notes to designate species and varieties are either such as have escaped revision since the publication of Nylander's Monograph, or the product of historical recasting. American students will have no difficulty in properly referring their *R. calicaris* forms now identified in Tuckerman's sense, if it be remembered that *R. fastigiata* and *R. fraxinea* must have curved spores, and *R. calicaris*, with its varieties and *R. farinacea* straight spores.

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*Lichen Notes No. I, BRYOLOGIST, 8: Nov. 1905, No. II, BRY. 9: Jan. 1906, No. III, BRY. 9: July, 1906, "Chemical Tests," No. IV, BRY. 9: Sept. 1906.

RAMALINA CALICARIS (L.) Nyl Mon. Ram. p. 33.

Lichen calicaris L. Sp. Plant, (1753) p. 1146.

Compare Dill. Hist. Musc. pl. 23. f. 62, cited by Linnaeus.

No reaction noted with KHO

This is *R. calicaris* Fr. var. *canaliculata* Fr. of Tuckerman's Synopsis. Distinguishable by its channelled laciniae, these being sometimes simple, narrow, and linear with few lateral branches, or flexuous and di-trichotomously much branched. The apothecia are marginal or terminal, in the latter case usually spurred. Spores straight, oblong-ellipsoid, 11–14 × 4–7μ. This plant is often mistakenly referred to *R. rigida.*

RAMALINA CALICARIS var. SUBAMPLIATA Nyl. Mon. Ram. p. 34.

Laciniae from narrow to sometimes broad (1 cm.), irregularly divided, and often lacerate, the surface rugose, darker in color than the type. Apothecia marginal, terminal or superficial. Spores straight, 10–17 × 4–7μ. Commonly identified in this country as *R. calicaris fraxinea* Fr. D. N. A. Lich. No. 222 is so referred, likewise Macoun's Canadian Lichens No. 12. The late Prof. E. E. Bogue distributed the plant as var. *fraxinea.* Examined from Noroton, Ct., Mrs. Lowe; Milwaukee, Wis., Dr. Sherman; Cameron, La., Mr. Cocks; and vicinity of Baltimore, Md., Mr. Plitt, Nos. 3, 53, and 53a.

RAMALINA CALICARIS var. SUBFASTIGIATA Nyl. Mon. Ram. p. 34.

Resembling both the type and *R. fastigiata.* The apothecia terminal and often without the spur. Spores straight (in *R. fastigiata* curved) 12–17 × 4–6μ. No. 5 L. B. A, belongs here and the plant is found in Knox Co., Maine. I have as yet seen no *R. fastigiata* (sensu Nyl.) from American sources.

RAMALINA FARINACEA (L.) Ach. L. U. p. 606.

Lichen farinaceus L. Fl. Suec. 2nd ed. p. 1089.

This is *R. calicaris* v. *farinacea* Schaer. of Tuckerman's Synopsis. Only once seen with apothecia in a specimen collected in Knox Co., Maine, by the writer. It is a plant of common occurrence in temperate regions with several distinct aspects or modes of growth. Only one will be particularized here and that:

RAMALINA FARINACEA forma **latus** Merrill in litt.

Collected on San Juan Island, Wash., by Mr. S. A. Foster, No. 559. The form is characterized by extremely broad laciniae (9 mm.), with the soredia marginal and terminal. In the specimens examined the laciniae attain a length of 4 cm. only, and the peculiar condition is probably due to its growth in an excessively moist situation.

RAMALINA FRAXINEA (L.) Ach. L. U. p. 602.

Lichen fraxineus L. Fl. Suec. 2nd ed. p. 1091.

Only one American specimen of this species has been examined, collected by Prof. B. Fink on trees at Red Lake, Minn. The specimens are leaf-like and referable to the form *monophylla* Crombie. Grevillea VII (1879) p. 141. Spores curved, 15 × 6.5μ.

RAMALINA COMPLANATA (Sw.) Ach. L. U. p. 559.

Lichen complanatus Sowerby Fl. Ind. occid. III, p. 1911, me. KHO—

Examined in a specimen from Snake Key, Fla., collected by Mr. Baker and communicated by Mr. S. Rapp. Spores variously ellipsoid, straight, 11–18 × 3–5μ. The laciniae papillate.

RAMALINA DENTICULATA (Eschw. Brazil, p. 221, sub Parmelia) me. KHO+yellow, at length red.

Very similar to *R. complanata* but distinguished by its behavior with KHO, and curved spores 10–13 × 4.5–5μ in dimensions. Plant small, but the apothecia sometimes a centimeter in diameter. Collected in Jamaica by the late Miss Clara E. Cummings.

RAMALINA LINEARIS (Sw.) Nyl. Mon. Ram. p. 31.

Lichen linearis L. fil. et Sowerby Meth. Musc. illustr. p. 36.

Forma **spinulosa** Merrill, me. KHO—

Thallus attaining to 13 cm. in length, compressed, narrowed, canaliculate, linear and accuminate, pale straw-colored, the secondary branches patent, as likewise the short filiform branchlets, with the major divisions present and clothed. Apothecia small, lateral, pedicellate, at length rather convex. Spores ellipsoid, straight 13–17 × 7μ. Collected in Jamaica by the late Miss Clara E. Cummings. *R. canaliculata* Tayl. is with difficulty separable from this species.

RAMALINA ALLUDENS Nyl. Mon. Ram. p. 32.

Distinguished from *R. linearis* of which Tuckerman in Syn. makes it a variety, by the distinctly narrow, slightly curved, fusiform spores 27–34 × 3–4μ, No. 193 Pringle's Mexican Lichens belongs here.

RAMALINA USNEOIDES (Ach.) Fr. L. E. p. 468.

Parmelia usneoides Ach. Meth. p. 270.

Spores straight, fusiform, 23 × 3.5μ, No. 206 Pringle's Mexican Lichens. Seems to be common in Mexico, and is a very handsome plant.

RAMALINA ANCEPS Nyl. Syn. I, p. 290, me. KHO+yellow, at length red.

Laciniae elongated, pendulous, slender, compressed. ancipital, sublinear, smooth and somewhat shining, dichotomously divided throughout. the terminal branchlets attenuate and flexuous. Apothecia pallid, geniculately affixed. Spores ellipsoid or oblong-ellipsoid, straight, 12–18 × 5–8μ. Collected in Jamaica by the late Miss Clara E. Cummings. This species should be looked for in the southern States.

RAMALINA YEMENSIS (Ach.) Nyl. Mon. Ram. p. 46.

Ramalina fraxinea var. *Yemensis* Ach. L. U. p. 602, me. KHO—

This is *R. laevigata* Fr. of Tuckerman's Syn. Spores straight, 10–14 × 4.5–5μ, No. 81 D. N. A. Lich. from Austin, Texas, and No. 13 Pringle's Mexican Lichens from Monterey, Mexico, typical; No. 458 Plants of Mexico, collected by Dr. Palmer at Alvarez, State of San Luis Potosi, is in part forma *sublinearis* Nyl. l.c. p. 46, and appears to be an alpine state; No, 244 Pringle's Mexican Lichens is forma *latior* Nyl. Mon. Ram. p. 46, and has larger spores than the type.

RAMALINA POLLINARIA Ach. L. U. p, 608.

Lichen pollinarius Ach. in V. ac. H. (Act. Holm.) 1797; p. 263, Pl. XI. f. 2, me. KHO—

A plant received from Mr. A. S. Foster, collected at San Juan Island, Wash., in 1907, seems to be the var. *humilis*. No other American material thus far seen seems referable to this species, although several specimens examined, all provided with mealy soredia, have been so marked by our collectors. Just what form Tuckerman refers to in Syn. p. 27, as occurring on trees and rocks, it is difficult to say, unless it be a plant generally diffused throughout the northern U. S. commonly found on rocks, which while resembling minor states of *R. farinacea* has the laciniae of *R. dilacerata f. pollinariella*. Invariably occurring without apothecia, the status of the form is doubtful. It is altogether different from the San Juan plant cited, which while provided with apothecia, affords no spores.

RAMALINA POLYMORPHA (Ach.) L. U. p. 600.

Lichen polymorphus Ach in V. ac. H. 1797, p. 270, Pl. XI. f. 3, me. KHO—

Tuckerman cites a plant collected by Wright at Bering Strait as referable here, but states that it differs from the European forms of the species. Assuming that Wright's plant may be identical with one collected at a later date by J. M. Macoun on St. Panl's Island and issued as Nos. 6 and 8 of Macoun's Canadian Lichens, this difference is to be clearly perceived. Both of the Macoun specimens are granulose-sorediate rather than farinose, but in all other particulars, even to the extent of being more or less foraminous, agreeing with *R. dilacerata pollinariella* Arn. The plant is better referable to that species, for published examples (Zahlbruckner's Kryp. exsic. No. 464 and L. B. A. No. 179) show distinctly granulate conditious of the soredia. Miss C. E. Cummings in Lichens of Alaska cites *R. polymorpha emplecta* Ach. from St. Paul's Island, collected by Dr. Bean. But the ultimate branchlets of Macoun's examples from the same locality are not accuminate, nor the major segments strongly longitudinally costate-rugose as in that variety. Nylander in Freti Behringii cites *R. pollinariella*, equivalent with *R. dilacerata pollinariella* as herein understood, from this region, and *R. pusilla geniculata* Tuckerm. under which name Tuckerman recognizes the same thing is reported from various adjacent localities. *R. polymorpha* seems to be non-existent in the United States.

RAMALINA CUSPIDATA (Ach.) Nyl. Mon. Ram. p. 60.

R. scopulorum var. *cuspidata* Ach. L. U. p. 605.

No. 9. ex. herb. Geological Survey of Canada, so marked, is fistulous, and foraminous, hence belongs with the *R. pusilla* section of Nyl Mon. Ram. p. 63. It seems best comparable with *R. Javanica* Nyl. l.c. p. 69, me. KHO—

RAMALINA DILACERATA (Hoffm.) Wainio in Medd. Soc. pro. faun. et flor. fennic. XIV (1888) p. 14 and 21.

Lobaria dilacerata Hoffm. Deutsch. Fl. (1796) p. 140. me. KHO—

This is *R. minuscula* Nyl. Mon. Ram. p. 66, and *R. pusilla geniculata* Tuck. Syn. p. 26, is made a synonum by that writer. Tuckerman's disposition of American representatives of the fistulous Ramalinas is unsatisfactory and incomprehensible. No. 3 Macoun's Canadian Lichens of published American exsiccati seems to represent the species best, although No. 207 D. N. A. Lich. is scarcely inferior. It is probable that Tuckerman would have referred both to his *R. pusilla*, and it is equally certain that both are *R. minuscula* in Nylander's sense. The cortex is filamentous rather than amorphous, that character being assigned to *R. pusilla*. The species is usually esorediate and to a considerable degree resembles *R. fastigiata* in miniature.

RAMALINA DILACERATA F. POLLINARIELLA Arn. in Verh. Zool. Bot. Ges. Wien. XLVII (1897) p. 354.

This is the multifid laciniate form that by most American students is referred to var. *geniculata* Tuckerm. of *R. pusilla*. Commonly infertile, the specimens vary considerably in size, being small on a saxicoline substrata, and larger with more numerous branches on a corticoline. The smaller states, were it not for their being more or less fistulous, might be as readily identified as *R. farinacea*. No. 179 L. B. A. represents the saxicoline form. Both the species and variety are northern in range, the species having been examined from Nipigon Lake, Cape Breton, Hastings, B. C., Victoria, V. I., and Quebec, collected by Prof. J. Macoun; Newfoundland, Waghorne; while the variety comes to notice from Sable Island, Murray River, Que.,, Cape Breton, the Gaspe Country, Anticosta, J. Macoun; and St. Paul's Island, Bering Sea and Unalaska, J. M. Macoun; Maine and New Hampshire, Merrill.

RAMALINA INFLATA Hook. fil. et Tayl. Antarct. I, p. 194.

Var. **sorediians** Merrill var. nov. me. KHO—

Agreeing with the species except that the laciniae laterally and sometimes apically show a tendency to fissure, when the perforation becomes more or less circular, the inner wall of the podetia-like branch becomes visible through the perforation and all the exposed surface takes on a farinose aspect. Collected in Jamaica by the late Miss C. E. Cummings.

RAMALINA RIGIDA (Pers.) Nyl. Mon. Ram. p. 14.

Lichen rigidus Pers. in litt.

Physcia attenuata Pers. in Act. Societ. Wetterau. II. Pl. 10, s. 7, me. KHO+

Persoon's illustration of *Physcia attenuata* is sufficiently like *R. gracilenta* (Ach.) Nyl. but Nylander considers that it represents *R. rigida*, or at least his conception of it. Nylander distinguishes those closely allied forms of the *R. rigida* group in this manner. *R. rigida* is at once separated by the *reaction with hydrate of potash* me. KHO+yellow, at length red. The plant grows in a *fruticulose manner*, and the laciniae are terete or terete-compressed, the *cortex smooth*. Spores 10–15 × 7–8μ, straight, *ellipsoid or oblong-ellipsoid*. *R. gracilis* is characterized by *longitudinally striate*, *sub-costate*, *angulose* laciniae, *caespitose* habit, and larger spores, these being 11–21 × 7–9μ, straight, ellipsoid, or oblong or fusiform-ellipsoid, and *lack* of reaction with hydrate of potash. *R. gracilenta* differs from *R. gracilis* to which it is very closely allied in having slightly shorter and *nar-*

rower spores (11–18 × 4–5μ) these commonly *distinctly fusiform*, and by the tendency of the laciniae to become *torulose*. As in *R. gracilis* there is no reaction with potash. No American specimens of the *R. rigida* stock have yet been examined showing a medullary coloration on application of KHO, and it is certain that in Nylander's sense our southern examples must be referred to either *R. gracilenta* (Ach.) Nyl. Mon. Ram. p. 19, or *R. gracilis* (Pers.) Nyl. l. c. p. 17.

The so-called northern form of *R. rigida* that Willey in New Bedford Lichens thinks in its larger states may be referable to *R. gracilenta* has distinctly straight, ovoid or oblong-ellipsoid spores 8–15 × 4–6μ with the apothecia rather terminal than otherwise (in *R. rigida* and its allies commonly lateral). The form in no way resembles *R. gracilenta* and it is thought best to revive Tuckerman's name of *R. tenuis* for its designation. Very similar forms are collected in Florida, showing that it is not exclusively northern, and the character cited by Tuckerman for his *R. rigida*, of "besprinkled often with white warts," may only be applied to states of this species.

Rockland, Maine.

NOTES ON THE FRUITING SEASON OF SOME OF THE MOSSES.

PHEBE M. TOWLE.

Altho Dr. H. W. Arnell, of Upsala, Sweden, published, in 1875, a long list of the mosses of his country, giving their blooming and fruiting season and the time required for the development of their sporophytes, and Dr. A. Grimme brought out, in "Hedwigia," 1903, a similar list for Germany, yet, so far as the writer is aware, no extended list of this nature has been made for any part of America.

Not only do the months for the blooming and the fruiting vary with the latitude and the climate, but the length of time required for the development also varies under differing conditions. So if a list should in time be made for Burlington, Vt., for instance, it would not wholly agree with a list made for a locality further south. In fact, in an instance to be mentioned later, the dates for northern Vermont do not agree with those for the region of New York City.

Dr. Arnell, in THE BRYOLOGIST for May, 1905, mentions the value of observations repeated for several years for the sake of medium dates. The necessity for securing average dates has been emphasized by the late springs of 1906 and 1907, as compared with the early spring of 1905. In the latter year we had a warm April. But in 1906 on my first trip afield in the middle of April I found ice under the leaves on the slopes, and the flat was a sheet of ice. The first warm days began May 14th.

In 1905 *Mnium sylvaticum* is recorded as shedding spores the latter half of April, while in 1906 the same species, in shady places in town, did not open their lids until May 16th, the third warm day, while *Mnium affine ciliare* was several days later. Altho the development of these mosses was delayed by the cold spring their blooming time was apparently not affected; for the blooming time of both years was the same month—June, the 15th of the